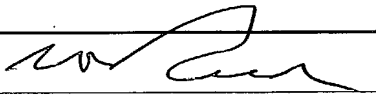


JG02 Rec'd PCT/PTO 27 MAR 2002

FORM PTO-1399 OFFICE (REV 10-95)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK		ATTORNEY'S DOCKET NUMBER	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				CM2210MQL	
				U.S. APPLICATION NO. (if known, see 37 CFR 1.5)	
INTERNATIONAL APPLICATION NO. PCT/US00/27134		INTERNATIONAL FILING DATE 02 October 2000		PRIORITY DATE CLAIMED 08 October 1999	
TITLE OF INVENTION Fibrous Material Comprising Fibers Made from Linear, Isotactic Polymers					
APPLICANT(S) FOR DO/EO/US RIEGER, Bernhard et al.					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information.					
<p>1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(I).</p> <p>4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application was filed (35 U.S.C. 371(c)(2))</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> has been transmitted by the International Bureau.</p> <p style="margin-left: 20px;">c. <input checked="" type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</p> <p>6. <input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</p> <p>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> have been transmitted by the International Bureau.</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</p> <p style="margin-left: 20px;">d. <input checked="" type="checkbox"/> have not been made and will not be made.</p> <p>8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</p> <p>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p> <p>Items 11. to 16. below concern document(s) or information included:</p> <p>11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <p>12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</p> <p>13. <input checked="" type="checkbox"/> A FIRST preliminary amendment.</p> <p style="margin-left: 20px;"><input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.</p> <p>14. <input type="checkbox"/> A substitute specification.</p> <p>15. <input checked="" type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>16. <input type="checkbox"/> Other items or information:</p>					
<p>"Express Mail" mailing label number <u>EL 48362152275</u></p> <p>Date of Deposit <u>27 March 2002</u></p> <p>I hereby certify that this paper/fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to The Assistant Commissioner of Patents, Washington, D.C. 20231</p> <p>Administrative Mailing Application</p> <p>Signature <u><i>Bernhard Rieger</i></u></p>					

JC13 Rec'd PCT/PTO 27 MAR 2002

U.S. APPLICATION NO. (if known, see 37 CFR 1.5) <b>10/089341</b>		INTERNATIONAL APPLICATION NO. PCT/US00/27134		ATTORNEY'S DOCKET NUMBER <b>CM2210MQL</b>	
				CALCULATIONS PTO USE ONLY	
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$740	
Surcharge of \$130.00 for furnishing the oath or declaration later than     20     30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$0	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	11-20 =	0	x \$18.00	\$0	
Independent Claims	4-3 =	1	x \$84.00	\$84	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			\$280.00	\$0	
TOTAL OF ABOVE CALCULATIONS =				\$824	
Processing fee of \$130.00 for furnishing the English translation later than     20     30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$0	
TOTAL NATIONAL FEE =				\$824	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28,3.31). \$40.00 per property +				\$0	
TOTAL FEES ENCLOSED =				\$824	
				Amount to be refunded	\$
				charged	\$
<p>a. <input type="checkbox"/> A check in the amount of \$ ____ to cover the above fees is enclosed.</p> <p>b. <input checked="" type="checkbox"/> Please charge my Deposit Account No. <u>16-2480</u> in the amount of \$ <u>824</u> to cover the above fees. A duplicate copy of this sheet is enclosed.</p> <p>c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>16-2480</u>. A duplicate copy of this sheet is enclosed.</p> <p>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.</p> <p>SEND ALL CORRESPONDENCE TO:</p>					
A. M. Stone, Patent Attorney Customer Number 27752				 Signature <u>T. David Reed</u> Name <u>32,931</u> Registration Number	

CM2210MQL

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the U.S. National Phase Entry  
Under 35 USC 371 from

RIEGER, Bernhard et al.

Int'l Application No. PCT/US00/27134

Filed in the RO/US on 02 October 2000

Entitled:	Fibrous Material Comprising Fibers Made From Linear, Isotactic Polymers
-----------	--

PRELIMINARY AMENDMENT UNDER 37 CFR §1.112

Assistance Commissioner for Patents  
Box PCT  
Washington, D. C. 20231

Dear Sir:

Prior to Examination and computation of the fees for entering the captioned International Application into the U. S. National Phase, please preliminarily amend the above-identified application as follows and consider the following Remarks.

AMENDMENTSIN THE CLAIMS

2. An article according to Claim 1  
wherein  
said homopolymer is polypropylene.
3. An article comprising a fibrous web material according to Claim 1.
4. An article according to Claim 1  
wherein  
said article is a hygienic article.
5. A hygienic article according to Claim 1  
wherein

said article is a disposable absorbent article.

6. An article according to Claim 1

wherein

said first element is a construction element of the article.

9. A method for manufacturing a fibrous web material according to Claim 1

wherein

said step of combining fibers is selected from the group of meltblowing, spunbonding, carding, air laying, wet laying, weaving, knitting, bailing, and combinations thereof.

11. A method of stabilizing a fibrous web material according to Claim 1

wherein

said step of stabilizing is selected from the group of hydroentangling, thermo bonding, pressure bonding, air through bonding, needling, resin bonding, combinations thereof.

REMARKS

Claims 1, 2, 3, 4 and 7 remain in this application. Claims 5, 6, 9 and 11 have been amended by eliminating multiple dependencies and deleting preferably clauses. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version With Markings to Show Changes Made."

The support for these amendments is found in the claims as originally filed. These amendments are being entered to bring the claims into conformance with, *inter alia*, 37 CFR §1.75, no new matter is added.

Respectfully submitted for Applicants,

By



T. David Reed  
Agent for Applicant  
Registration No. 32,931

Cincinnati, Ohio  
20 March 2002  
(513)627-7025/FAX (513)627-6333

“VERSION WITH MARKINGS TO SHOW CHANGES MADE”

## CLAIMS

1. A fibrous web material comprising a plurality of fibers characterized in that said fibers comprise a polyolefinic homopolymer having a an isotacticity of less than 60% of [mmmm] pentad concentration.
2. An article according to Claim 1 wherein said homopolymer is polypropylene.
3. An article comprising a fibrous web material according to Claim 1.
4. An article according to Claim 1 wherein said article is a hygienic article.
5. A hygienic article according to Claim 1 wherein said article is a disposable absorbent article.
6. An article according to Claim 1 wherein said first element is a construction element of the article.
7. A method for manufacturing fibers from polymeric material comprising a step of processing said polymeric material selected from the group of wet spinning, dry spinning, melt spinning, semi dry spinning (solvent evaporation or sedimentation), and combinations thereof characterized in that said polymeric material comprises a polyolefinic homopolymer having a an isotacticity of less than 60% of [mmmm] pentad concentration.

8. A method for manufacturing a fibrous web material comprising the steps of
- providing fibers of polymeric material
  - combining said fibers into a web material
- characterized in that
- said fibrous web material comprises a polyolefinic homopolymer having a an isotacticity of less than 60% of [mmmm] pentad concentration.
9. A method for manufacturing a fibrous web material according to Claim 1 wherein
- said step of combining fibers is selected from the group of meltblowing, spunbonding, carding, air laying, wet laying, weaving, knitting, bailing, and combinations thereof.
10. A method for stabilizing a fibrous web material comprising the steps of
- providing a fibrous web material
  - stabilizing step said fibrous web material
- characterized in that
- said fibrous web material comprises a polyolefinic homopolymer having a an isotacticity of less than 60% of [mmmm] pentad concentration.
11. A method for stabilizing a fibrous web material according to Claim 1 wherein
- said step of stabilizing is selected from the group of hydroentangling, thermo bonding, pressure bonding, air through bonding, needling, resin bonding, combinations thereof.



**FIBROUS MATERIAL COMPRISING FIBERS MADE FROM LINEAR,**  
**ISOTACTIC POLYMERS**

**FIELD OF THE INVENTION**

The present invention relates to fibrous web materials such as nonwoven materials used for example in hygienic articles. Specifically, the present invention relates to elastic fibrous web materials.

**BACKGROUND**

Fibrous materials and in particular nonwoven web materials comprising olefinic polymers are well known in the art and enjoy widespread usage throughout the industry. Typical areas of application of such fibrous web material include for example hygienic articles and in particular disposable absorbent articles.

Fibrous web materials made from commonly used polyolefins such as PP, PE, PS, PIB have a number of useful properties. They are bio-compatible and food compatible, chemically stable, inert, non toxic materials. However, most of them have poor mechanical properties including insufficient strength/tear resistance, insufficient stretchability/elasticity and the like.

Several approaches have been proposed in the prior art to provide elastic properties to such fibrous web materials. The most commonly used approach - besides providing laminates of fibrous web material with for example elastic films - is based on changing the chemical structure of the polymer by introducing hinged joints/moieties into the main chain of the polymer. These hinges provide more flexibility to the polymeric backbone preventing crystallization of polymer, lowering the glass transition temperature (T<sub>g</sub>) and improving the elasticity of the resulting material. Usually, the hinge groups contain heteroatoms providing

flexibility such as oxygen, nitrogen or chlorine placed into the main chain or into bulky side groups. Another approach is mastication of the polymer by blending with special plasticizing agents. Both approaches, however, require heteroatoms to be introduced into the molecule or into the bulk of the coating material.

The third approach proposed in the prior art to provide elastic properties to such fibrous web materials, which is more close to the present invention, is to exploit the formation of hetero-phases which reinforce the bulk material by forming a physical net. To do this the block-co-polymerization of two or more different monomers has been used leading to polymeric backbones comprising blocks with different Tg. This results in micro-phase separation in the bulk with formation of reinforcing crystalline domains of one co-polymer linked with each other by flexible chains of the second co-polymer.

In essence, conventional polymeric web materials carry a wide variety of inherent disadvantages including but not being limited to insufficient strength/tear resistance, insufficient stretchability/elasticity, not being bio-compatible, not being food compatible, comprising heteroatoms such as chlorine and hence leading to toxic residues when burnt, and the like.

It is an object of the present invention to provide fibrous web materials which overcome the disadvantages of the prior art fibrous web materials.

It is a further object of the present invention to provide articles which comprise fibrous web materials.

It is a further object of the present invention to provide a method for manufacturing fibrous web material of the present invention.

It is a further object of the present invention to provide a method processing a fibrous web material of the present invention.

#### SUMMARY OF THE INVENTION

The present invention provides a fibrous web material comprising a plurality of fibers. The fibrous web material is characterized in that the fibers comprise a

polyolefinic homopolymer having an isotacticity of less than 60% of [mmmm] pentad concentration.

The present invention further provides a method for manufacturing fibers from the aforementioned polymeric material comprising a step of processing the polymeric material selected from the group of wet spinning, dry spinning, melt spinning, semi dry spinning (solvent evaporation or sedimentation), and combinations thereof.

The present invention further provides a method for manufacturing a fibrous web material comprising the steps of providing fibers of the aforementioned polymeric material and of combining the fibers into a web material.

The present invention further provides a method for stabilizing a fibrous web material according to the present invention comprising the steps of providing a fibrous web material and of stabilizing step the fibrous web material.

#### DETAILED DESCRIPTION OF THE INVENTION

The present invention provides fibrous web materials comprising polyolefinic homopolymers.

The term "polyolefinic homopolymer" as used herein refers to those polyolefins which comprise only one phase of molecules all of which exhibiting a similar stereochemical configuration. For example, blends of atactic and isotactic polymers where the two phases have polymerized simultaneously are excluded when this term is used. The term homopolymer includes copolymers where all molecules exhibit a similar stereochemical configuration.

The polyolefinic homopolymer of the present invention may comprise linear isotactic polymers having a structure of one or several  $C_3$  to  $C_{20}$  olefinic monomers, having an isotacticity of less than 60%, preferably less than 55%, more preferably less than 50%, and most preferably less than 45% of [mmmm]

pentad concentration, and having an isotacticity of more 15%, preferably more than 20%, more preferably more than 25%, and most preferably more than of [mmmm] pentad concentration. Preferably, the polyolefinic homopolymer is polypropylene.

The isotacticity of the homopolymers may be reduced compared to the isotactic polypropylenes of the prior art due to a statistic distribution of stereoscopic errors in the polymer chain. The term "stereoscopic error" refers to a stereoscopic sequence characterized by a [mrrm] pentad. In this case, the central monomer has a stereo configuration opposed to the other four monomers in this pentad. The [mrrm] pentad concentration of this polymer therefore is above the statistical probability of  $p^2 (1-p)^2$  where  $p=[m]$  and hence  $1-p=[r]$  and  $p^4=[mmmm]$ . Preferably, the pentad concentration is at least  $[p (1-p)]^4 p (1-p)$  with  $q$  being 0.8, more preferably  $q$  being 0.6, yet more preferably  $q$  being 0.4, yet more preferably  $q$  being 0.2, most preferably  $q$  being 0.1.

In some embodiments of the homopolymer and in particular in those embodiments where the crystallinity is reduced by means of single stereo errors, a low content of atactic sequences has proven beneficial to the properties of the fiber of the present invention. Preferably, the [rmrm] pentad concentration is below 6%, more preferably below 5%, yet more preferably below 4%, yet more preferably below 3%, most preferably below 2.5%.

In some embodiments of the homopolymer and in particular in those embodiments where the crystallinity is reduced by means of single stereo errors, a low content of syndiotactic sequences has proven beneficial to the properties of the fiber of the present invention. Preferably, the [rrrr] pentad concentration is below 6%, more preferably below 5%, yet more preferably below 4%, yet more preferably below 3%, most preferably below 2.5%.

Alternatively, the homopolymer of the present invention may include sequences of atactic and isotactic blocks of polymer.

Preferably, the mean molecular weight  $M_w$  of the polymer is above 100000 g/mol, more preferably above 200000 g/mol, yet more preferably above 250000 g/mol, yet more preferably more than 300000 g/mol, most preferably more than 350000 g/mol.

The glass temperature  $T_g$  is between -50 and +30 °C. Preferably the glass temperature is below 10°C, more preferably below 5°C, yet more preferably below 0°C, most preferably below -6°C. The melt temperature of the polymer is obtained after heating the sample 150°C and subsequently cooling the polymer to -50°C.

Without wishing to be bound by this theory, the polyolefinic polymers exhibit a semi-crystalline structure. The structure contains elastic amorphous areas of nano-scale-size reinforced with self arranged crystalline domains of nano-crystals. The formation of brittle macro-crystalline material from the polymer is achieved by introducing the defects into the polymeric backbone. Isolated monomer units with opposite stereo configuration have been used as the defects, i.e. single stereo errors.

Suitable polymers and a process for manufacturing such polymers are described in PCT patent application EP99/02379 incorporated herein by reference. A catalyst combination suitable for the preparation of such polymers is described in PCT patent application EP99/02378 incorporated herein by reference. Preferably, the process of PCT patent application EP99/02378 is carried out by temperatures of less than 30°C, more preferably less than 25°C, yet more preferably less than 20°C, most preferably less than 15°C to increase the molecular weight of the resulting polymer. In order to increase the molecular weight, the polymerization

is preferably carried out in liquid monomer such as in liquid propene. In order to increase the molecular weight, the catalyst is preferably used in combination with the boron activators mentioned in PCT patent application EP99/02378.

Other suitable polymers and a process for manufacturing such polymers is described in WO99/20664 incorporated herein by reference.

It is preferred to use homopolymers for the fibers of the present invention since during manufacture of homopolymers the batch to batch variability is greatly reduced in comparison to multi phase polymers where the phases are polymerized in a single reaction.

Preferably, the polymers used in manufacturing the fiber materials of the present invention have a distinctive rubber-elastic plateau in their stress strain curves.

The polymers used for the fiber of the present invention are bio-compatible may be burnt without toxic residues since they contain no heteroatoms such as chlorine. The further do not contain toxic monomer residues.

The fiber materials of the present invention have been found to be able exhibit superior softness. Preferably, the fiber material has a Shore hardness on the A scale of less than 30, more preferably, of less than 25, yet more preferably of less than 20, yet more preferably of less than 15, most preferably of less than 10. The softness of the fiber material of the present invention can be increased by manufacturing the fiber by reducing the isotacticity ([mmmm] pentad concentration).

The fiber material has been found to exhibit increased temperature stability compared to prior art fiber materials. This is partly due to the fact that for the fibers of the present invention a homopolymer is used and is partly due to the high molecular weight of the homopolymer. Preferably, the fiber material of the



Various additives may be added to the homopolymer of the present invention to change the properties of the polymer such as is well known in the art.

There are known in the art a wide variety of suitable methods to manufacture and /or processing fibers from the polymer of the present invention including but not being limited to wet spinning, dry spinning, melt spinning, semi dry spinning (solvent evaporation or sedimentation), crazing, and combinations thereof. Fibers suitable for the web materials of the present invention may be mono fibers or the may comprise filaments.

For at least some of the spinning processes, it has been found that the amount of the low isotacticity homopolymer of the present invention present in the fiber of the present invention needs to be reduced in order to accelerate crystallization of the fibers after spinning. Preferably, the fiber of the present invention comprises less than 80% of the low isotacticity homopolymer, more preferably less than 60%, yet more preferably less than 40%, most preferably less than 30%. Alternatively, a high isotacticity polymer having a broader molecular weight distribution may be used in order to accelerate crystallization times.

Compared to spinning of conventional, isotactic polypropylene, the addition of the low isotacticity homopolymer of the present invention reduces the requires forces, pressures, or torques respectively to process the polymer.

There are known in the art a wide variety of suitable methods to manufacture fibrous web material according to the present invention from fibers including but not being limited to meltblowing, spunbonding, carding, air laying, wet laying, weaving, knitting, bailing, and the like. There are further known in the prior art a wide variety of suitable methods for optional stabilization of the fibrous web material of the present invention including but not being limited to



hydroentangling, thermo bonding, pressure bonding, air through bonding, needling, resin bonding, combinations thereof, and the like.

It is a further aspect of the present invention to provide an article comprising a fibrous web material according to the present invention.

The article according to the present invention may be a hygienic article. The term "hygienic article" as used herein refers to articles which are intended to be used in contact with or in proximity to the body of a living being. Such hygienic articles may absorbent or non-absorbent. Such hygienic articles may be disposable or intended for multiple or prolonged use. Such hygienic articles include but are not limited to disposable absorbent article (diapers, sanitary napkins, adult incontinence devices such as briefs, bed mats, wound plasters, underarm sweat pads, and the like), medical supply items (coverings, gowns, drapes, face masks, bandages, body implants, and the like), and other hygienic articles such as toys, bed covers, and the like. Having regard to the specific advantages of the polymers used for the articles of the present invention, it will be readily apparent to the skilled practitioner to apply the fibrous web materials according to the present invention in the above and similar hygienic articles.

The article of the present invention may also be a clothing article or a household article including but not being limited to bed covers, underwear, tights, socks, gloves, sport clothing, outdoor clothing, low temperature clothing, shoes and shoe covers, protective clothing such as for motor biking, blankets, covers, bags, items of furniture, and the like. Having regard to the specific advantages of the polymers used for the articles of the present invention, it will be readily apparent to the skilled practitioner to apply and to optionally modify the fibrous web materials according to the present invention in the above and similar articles.



## CLAIMS

1. A fibrous web material comprising a plurality of fibers characterized in that said fibers comprise a polyolefinic homopolymer having a an isotacticity of less than 60% of [mmmm] pentad concentration.
2. An article according to Claim wherein said homopolymer is polypropylene.
3. An article comprising a fibrous web material according to Claim .
4. An article according to Claim wherein said article is a hygienic article.
5. A hygienic article according to Claim wherein said article is a disposable absorbent article.
6. An article according to Claim wherein said first element is a construction element of the article.
7. A method for manufacturing fibers from polymeric material comprising a step of processing said polymeric material selected from the group of wet spinning, dry spinning, melt spinning, semi dry spinning (solvent evaporation or sedimentation), and combinations thereof characterized in that said polymeric material comprises a polyolefinic homopolymer having a an isotacticity of less than 60% of [mmmm] pentad concentration.

8. A method for manufacturing a fibrous web material comprising the steps of
  - providing fibers of polymeric material
  - combining said fibers into a web materialcharacterized in that  
said fibrous web material comprises a polyolefinic homopolymer having a an isotacticity of less than 60% of [mmmm] pentad concentration.
9. A method for manufacturing a fibrous web material according to Claim wherein  
said step of combining fibers is selected from the group of meltblowing, spunbonding, carding, air laying, wet laying, weaving, knitting, bailing, and combinations thereof.
10. A method for stabilizing a fibrous web material comprising the steps of
  - providing a fibrous web material
  - stabilizing step said fibrous web materialcharacterized in that  
said fibrous web material comprises a polyolefinic homopolymer having a an isotacticity of less than 60% of [mmmm] pentad concentration.
11. A method for stabilizing a fibrous web material according to Claim wherein  
said step of stabilizing is selected from the group of hydroentangling, thermo bonding, pressure bonding, air through bonding, needling, resin bonding, combinations thereof.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
19 April 2001 (19.04.2001)

PCT

(10) International Publication Number  
**WO 01/27372 A1**

- (51) International Patent Classification<sup>7</sup>: **D04H 1/42, A61F 13/15**
- (21) International Application Number: **PCT/US00/27134**
- (22) International Filing Date: **2 October 2000 (02.10.2000)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:  
**99120174.0**      **8 October 1999 (08.10.1999)**      **EP**
- (71) Applicant (for all designated States except US): **THE PROCTER & GAMBLE COMPANY [US/US];** One Procter & Gamble Plaza, Cincinnati, OH 45202 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **RIEGER, Bernhard [DE/DE];** Johann-Stockar-Weg 8, 89075 Ulm (DE). **ORROTH, Mike [US/GB];** Flat 3, 122 Richmond Hill, Richmond, Surrey TW10 6RJ (GB). **DE BELDER, Gian [BE/BE];** Oever 33 bus 2, B-2500 Lier (BE).
- (74) Agents: **REED, T., David et al.;** The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).
- (81) Designated States (national): **AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.**
- (84) Designated States (regional): **ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).**
- Published:**
- *With international search report.*
  - *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **FIBROUS MATERIAL COMPRISING FIBERS MADE FROM LINEAR, ISOTACTIC POLYMERS**

(57) Abstract: The present invention relates to fibrous web materials comprising polymeric material wherein the structure of the polymeric material contains elastic amorphous areas of nano-scale-size reinforced with self arranged crystalline domains of nanocrystals.

WO 01/27372 A1

CM2210MQL

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the U.S. National Phase Entry

Under 35 USC 371 from

RIEGER, Bernhard et al.

Int'l Application No. PCT/US00/27134

Filed in the RO/US on 02 October 2000

Entitled: Fibrous Material Comprising Fibers Made From Linear, Isotactic Polymers

## ASSOCIATE POWER OF ATTORNEY

Assistant Commissioner for Patents

Box PCT

Washington, D.C. 20231

Dear Sir:

You are requested to recognize L. W. Lewis (Registration No. 30,769), P. D. Meyer (Registration No. P-47,792), L. L. Huston (Registration No. 32,994), A. M. Stone (Registration No. 41,335), and P. M. Ulrich (Registration No. 46,404) of The Procter & Gamble Company, Cincinnati, Ohio, and all other attorneys/agents associated with the customer number(s) listed below as Associate Attorneys to prosecute this application, to make alterations and amendments therein, and to transact all business in the Patent Office connected with the application or with the patent granted thereupon.

Please address all future communications to:

A. M. Stone, Patent Attorney  
Customer No. 27752

Respectfully submitted for Applicants,

By

T. David Reed  
Agent for Applicant  
Registration No. 32,931

Cincinnati, Ohio  
20 March 2002  
(513) 627-7025/FAX 627-6333

## DECLARATION COMBINED WITH POWER OF ATTORNEY

100893441 032702

Attorney Docket No. CM2210MQ/VB

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled Fibrous Material Comprising Fibers Made From Linear, Isotactic Polymers the specification of which

(check ☐ is attached hereto.

one) ☒ was filed on 02 October 2000 as United States Application No. or  
PCT International Application Serial No. PCT/US00/27134  
and was amended on \_\_\_\_\_

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations §1.56.

I hereby claim foreign priority benefits under Title 35 United States Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)Priority Claimed

99120174.0

EP

08 October 1999

Yes No

☒ ☐☒ ☐☒ ☐☒ ☐

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Application Serial No.Filing DateApplication Serial No.Filing Date

I hereby claim the benefit under Title 35 United States Code §120 of any United States application(s), or §365(c) of any PCT International application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35 United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (If applicable)

As named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

Atty NameAtty Reg Number.

Associate Power  
of Attorney Attached  
☐ Yes ☒ No

Stephen W. Miller

31,984

T. David Reed

32,931

Timothy B. Guffey

41,048

Donald E. Hasse

29,387

Brian M. Bolam

37,513

SEND CORRESPONDENCE TO:

T. David Reed, c/o The Procter Gamble Company

(513) 627-7025

Name

Phone No.

5299 Spring Grove Avenue

Cincinnati

Ohio

45217-1087

Street

City

State

Zip Code

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1-10 Full name of sole or first joint inventor RIEGER, Bernhard

Inventor's signature Bernhard Rieger

24/01/2000  
Date

Residence Johann-Stockar-Weg 8, 89075 Ulm, DE BEX

Citizenship DE

Post Office Address Johann-Stockar-Weg 8, 89075 Ulm, DE

2-0 Full name of second joint inventor, if any ORROTH, Mike

Inventor's signature Mike Orroth

11/01/2000  
Date

Residence Flat 3, 122 Richmond Hill, Richmond, Surrey TW10 6RJ, GB BEX

Citizenship US

Post Office Address Flat 3, 122 Richmond Hill, Richmond, Surrey TW10 6RJ, GB

3-0 Full name of third joint inventor, if any DE BELDER, Gian

Inventor's signature Gian Armand Juliana De Belder

03/01/2001  
Date

Residence Oever 33 bus 2, 2500 Lier, BE BEX

Citizenship BE

Post Office Address Oever 33 bus 2, 2500 Lier, BE

Full name of fourth joint inventor, if any \_\_\_\_\_

Inventor's signature \_\_\_\_\_

\_\_\_\_\_  
Date

Residence \_\_\_\_\_

Citizenship \_\_\_\_\_

Post Office Address \_\_\_\_\_

Full name of fifth joint inventor, if any \_\_\_\_\_

Inventor's signature \_\_\_\_\_

\_\_\_\_\_  
Date

Residence \_\_\_\_\_

Citizenship \_\_\_\_\_

Post Office Address \_\_\_\_\_

(Decl.doc)

REVISED 12/97

PO(Same as Residence) 12/99